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# MEMORANDUM

To: Eric Blischke, EPA

From: Lisa Saban and Helle Andersen, Windward Environmental

Subject: Revised upstream ambient locations

Date: October 19, 2004

On October 13 and 14, 2004, the upstream ambient survey was conducted in the Willamette River upstream of the Portland Harbor Superfund Site, as described in the memorandum *Upstream Ambient Sampling Approach and Additional Site Sampling* (Windward and Avocet, 2004).

The field crew consisted of Gene Revelas from Integral and Helle Andersen from Windward Environmental on the first day and Thai Do and Helle Andersen from Windward Environmental on the second day. On both days Dale Dickenson was skipper of the boat. October 13, 2004, Andrew Somes from Parametrix conducted oversight on the survey boat. The following day, Joe Goulet, EPA, Jennifer Peterson, DEQ, Pam Bridgen, EI, and Andrew Somes from Parametrix observed the survey methods from a boat provided by EPA. The separate boat gave the agencies an opportunity to see the river independently of the survey boat.

The survey covered an area from Goat Island approximately 2 miles below the Willamette Falls at river mile (RM) 24.5 to Ross Island at RM 15.5 (Figure 1). Based on a general description this stretch of the Willamette River can be divided into three areas. In the upper 2 miles the sediments in the channel are coarse-grained and only very protected areas have finer-grained sediments. Approximately ½ miles upstream of Hog Island (RM 22.5) to RM 20 the river narrows, the flow increases, and the banks consist mostly of rock outcrops. From Elk Rock Island at RM 19 to Ross Island at RM 15.5 the river becomes wider and a larger range of sediment grain-sizes can be found.

Based on a conversation with Eric Blischke and Joe Goulet from EPA (Windward pers. comm. 10/19/04) six upstream areas are proposed as upstream ambient sampling locations; two of these are upstream of Hog Island and four are at or downstream of Elk Rock Island. Three individual samples will be collected at each location for a total of 18 samples for toxicity testing. The selection process was based on a revised matrix table

(Table 1) where depth as a variable was eliminated. In addition, a station with potential higher TOC level was included and a quiescent station with a coarse grain size was eliminated to arrive at the six sampling areas. A summary description of the six proposed locations is presented in Table 2.

**Table 1. Revised matrix table incorporating grain size, TOC, and flow rate variables**

| GRAIN SIZE (% FINES) | QUIESCENT | CHANNEL |
|---|---|---|
| <20% | - | LWG-1-C (LWG-2-C) |
| 20-60% | LWG-5-Q (LWG-8a-Q[a]) | LWG-2-C (Station 762[b]) |
| >60% | LWG-4-Q (LWG-4-Q[c]) | LWG-3-C (LWG-3-C[c]) |
| High TOC | LWG-6-TOC (LWG-8b-Q) | - |

a: This station was moved approximately ½ miles upstream from Hog Island

b: The location of this area is based on GeoSea survey (2001)

c: "Q" and "C" refer to "quiescent" and "channel" locations, respectively

Station names in parentheses are survey names

## Table 2. Summary information on the six proposed locations

| Location Name | Survey Station Name | Elevation (ft CRD) | Grain Size (% fines) | Flow Regime | Location Description | Lat | Long |
|---|---|---|---|---|---|---|---|
| LWG-1-C | LWG-2-C | ≥ - 10 | <20% | channel | Near southern tip of Hard Tack Island. In the main channel. Hart Crowser station HC-2 (Hart Crowser 2002) | 45 28.740 | 122 39.886 |
| LWG-2-C | GeoSea station 762 | < -10 | 20-60% | channel | No location was surveyed matching this description. However, station 762 in the survey by GeoSea (2001) match this description | 45 28.267 | 122 40.110 |
| LWG-3-C | LWG-3-C | < -10 | >60% | channel | This station was moved out in the middle of the channel between RM 17 and 18 to get higher % fines (based on the survey by GeoSea (2001)) | 45 27.380 | 122 39.638 |
| LWG-4-Q | LWG-4-Q | ≥ - 10 | >60% | quiescent | Bay on the eastern bank behind Elk Rock Island. Possible higher TOC level. Hart Crowser station HC-8 (Hart Crowser 2002) | 45 26.233 | 122 38.769 |
| LWG-5-Q | LWG-8a-Q | < -10 | 20-60% | quiescent | This station was moved from adjacent to Hog Island at RM 22 to across from LWG-9-Q between RM 22 and 23. Sandy beach behind a small headland. Possible higher TOC level | 45 23.550 | 122 37.755 |
| LWG-6-TOC | LWG-8b-Q | Possible higher TOC level | | | Inside Cedar Island Lagoon. Relatively steep banks with gravel surrounded the lagoon. Possible higher TOC level | 45 23.219 | 122 37.567 |

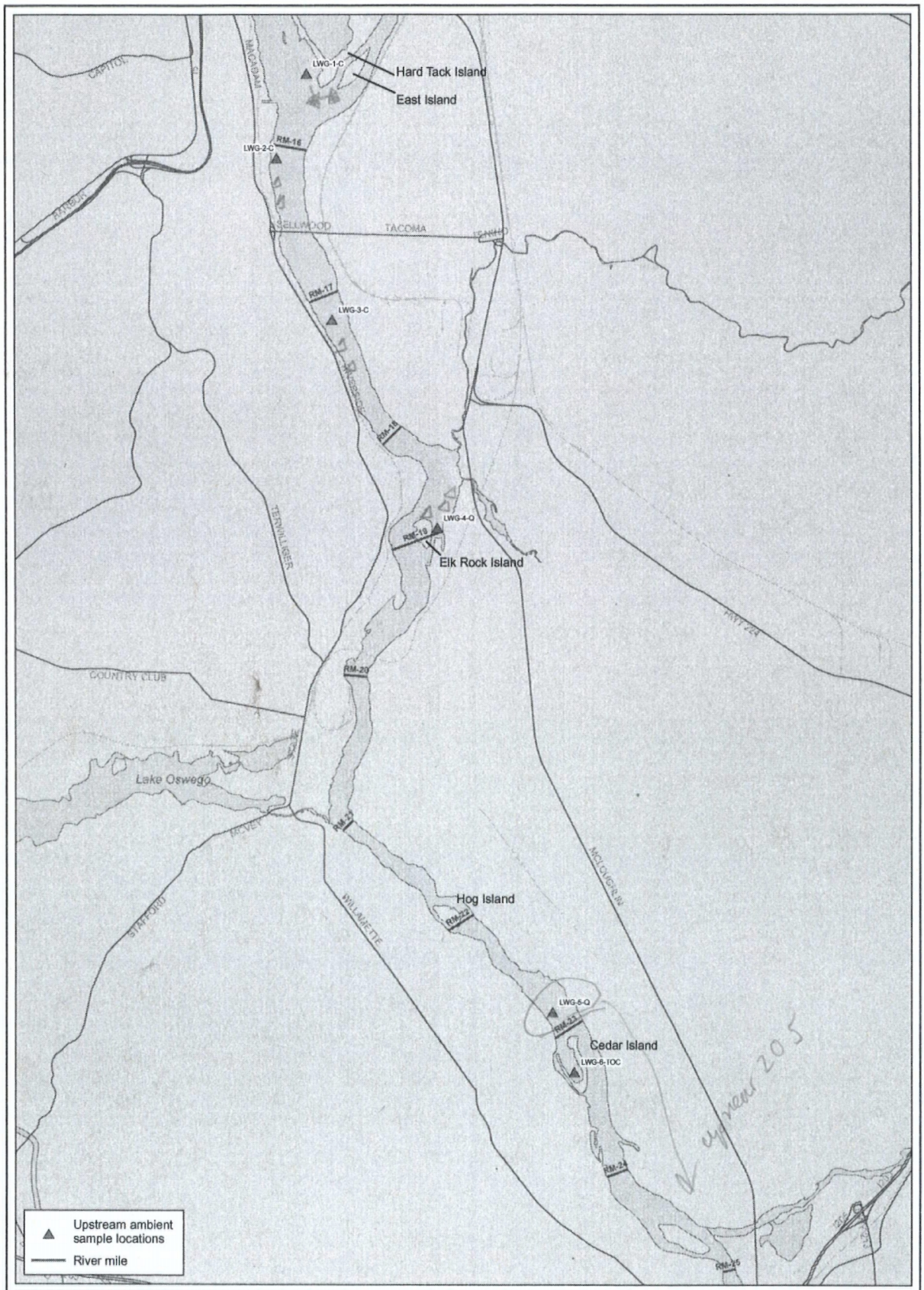


**Figure 1. Upstream ambient proposed locations**

For proposed upstream ambient sample locations, "Q" and "C" in the sample ID refer to "quiescent" or "channel" locations, respectively. "TOC" refers to potentially higher TOC.

0 0.25 0.5 1 Miles

0 0.5 1 2 Kilometers

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Prepared by CEJ 09/03/04 Map 1553

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